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Bureau of  
Land  
Management

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# ENVIRONMENTAL ASSESSMENT

for the  
**PRYOR MOUNTAIN WILD HORSE RANGE**  
**POPULATION CONTROL 2006**  
EA # BLM-MT-010-FY06-19

Billings Field Office, BLM  
Billings, Montana



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## 1.0 BACKGROUND INFORMATION

### 1.1 Introduction

The Bureau of Land Management (BLM), Billings Field Office (BiFO) proposes to apply fertility control to all mares 11 years of age and older (24 total in 2006) within the PMWHR for the purposes of suppressing herd growth rates. Treatment with the PZP vaccine would continue annually through 2010. Seven mares 16 years of age and older have already been treated with the Porcine Zona Pellucida (PZP) vaccine for at least one year and would continue to receive annual boosters for the remainder of their lives. Thirteen mares 12-15 years of age have also been treated for at least one year and would continue to receive boosters. All mares that are 11 years of age would be added to the treatment program each year (4 mares in 2006 and an estimated 5 mares in 2007, 6 mares in 2008, 6 mares in 2009 and 4 mares in 2010). The use of fertility control on mares within the PMWHR began in 2001 and additional fertility control has been remotely-delivered during the summers of 2002 through 2005. Previous environmental assessments (EAs) can be found at [http://www.mt.blm.gov/bifo/whb/Env\\_assessments.html](http://www.mt.blm.gov/bifo/whb/Env_assessments.html).

In addition, the BiFO is proposing to capture and remove up to 24 age-specific wild horses from the PMWHR. As with previous selective removals, the intent is not to remove any horses that are currently harem stallions or core breeding-age mares (6-10 years old) from the herd. An estimated 12 bachelor stallions (4-8 years of age) and 12 yearlings (no more than 50% of any age class), have been determined excess and would be removed due to deteriorating range conditions. The method of capture will be bait-trapping with mineral and/or protein blocks, using temporary traps of portable panels at specified locations throughout the designated range and/or adjacent lands. After capture in the trap, horses will be sorted with only selected individuals being removed.

Within the last decade, excess wild horses were gathered in the PMWHR in 1997, 2001 and 2003 (Table 1). Although helicopter-drive trapping has been used successfully in the PMWHR, this year approximately half of the wild horses identified as excess are bachelor stallions that historically have avoided helicopter removal efforts. Bait-trapping may provide a less intrusive and more effective capture method.

**Table 1: PMWHR Herd Demographics 1996-2005**

Y e a r	F o a l s Born	F o a l s Surviving	A d u l t Deaths	#Horses Removed	T o t a l Herd Size	#Horses Over AML
1996	32	28	1	0	175	42
1997	35	32	1	46	147	10
1998	23	23	4	0	158	30
1999	38	26	11	1	173	42
2000	37	27	8	0	188	56
2001	40	27	14	46	160	28
2002	34	23	9	0	170	42

<b>2003</b>	30	22	22	7	161	34
<b>2004</b>	28	4	19	0	142	33
<b>2005</b>	38	24	12	0	159	30
<b>Annual Average</b>	<b>34</b>	<b>24</b>	<b>10</b>	<b>N/A</b>	<b>164</b>	<b>35</b>

- reported annually in November
- AML reported as the upper level of a range (85-105) of adult horses (MT-025-2-18)

## 1.2 Need for the Proposal

Since 1996, the Pryor Mountain wild horse herd has averaged 140 adult horses and 24 foals (Table 1). The Pryor herd currently consists of 135 adult horses and approximately 24 surviving foals from 2005. A minimum of 26 foals is expected in 2006. Genetic research (Cothran and Singer, 2000) suggests that maintaining an average of 140-150 total horses may facilitate genetic conservation within the herd. However, updated range health and trend studies (Ricketts, 2004), as well as the results of BLM monitoring for actual use, utilization and climate (see Section 1.9) provide clear evidence that the health of the designated range is deteriorating and must be provided relief from wild horse grazing impacts that are exceeding proper use levels. The proposed population controls are necessary to immediately reduce herd size to nearer the appropriate management level (AML) of 85-105 adult horses (MT-025-2-18) and to suppress herd growth rates. The result will be decreased forage demands on drought-stressed resources.

The proposed fertility control is scheduled to begin no earlier than July 10, 2006, and will continue annually through 2010. The proposed bait-trapping is scheduled to begin no earlier than July 10, 2006, and may continue through September 30, 2006 as necessary.

This document outlines relevant information about the PMWHR and presents alternatives for population control efforts. It also addresses the methods and procedures to be used in implementing these management actions and assesses potential environmental impacts. This document is also available at [http://www.mt.blm.gov/bifo/whb/Env\\_assessments.html](http://www.mt.blm.gov/bifo/whb/Env_assessments.html).

**Public comments to the enclosed EA must be submitted in writing, contain original signatures and be postmarked by Friday, May 5, 2006.**

## 1.3 Location

The PMWHR is located in the southeastern portion of Carbon County, Montana, and extends into the northern portion of Big Horn County, Wyoming (location information provided at <http://www.mt.blm.gov/bifo/whb/index.html>). The PMWHR encompasses about 39,650 acres and includes BLM, National Park Service (NPS-BCNRA), Custer National Forest (USFS) and private lands (Krueger). The range is approximately 13 miles north of Lovell, Wyoming. The PMWHR was created in 1968 by order of the Secretary of the Interior, Stewart L. Udall. This designation was the first of its kind in the United States, and directs that management of the wild horses be within a balanced program, which considers all public values without impairment to the productivity of the land. Henceforth, this area has been administered for the protection and management of wild horses, wildlife, watershed, archeological, recreational, and scenic values.

The order also states that the BLM will manage the range in a manner compatible with the Bighorn Canyon National Recreational Area (BCNRA), which is adjacent to East Pryor Mountain.

#### **1.4 Appropriate Management Level**

AML is the number of adult wild horses (6 months and older), determined through BLM's planning process, to be consistent with the objective of achieving and maintaining a thriving natural ecological balance (TNEB) and multiple-use relationship. The Pryor Mountain Herd Management Plan (HMAP, BLM-MT-PT-84-019-4321/June 1984) and the Billings Resource Area Management Plan (Sept. 28, 1984) established an initial stocking rate for the range at 115-127 wild horses. AML was revised in July 1992 and set at 85-105 adult horses (MT-025-2-18).

BLM has been considering a revision of AML for the herd based on extensive research in areas of herd demographics and genetics, ecosystem health, range condition and trend and updated ecological site inventories. Genetic research on the Pryor horses (Cothran and Singer, 2000; Gross 2000a, b) indicates that an average long-term herd size of ~140-150 horses appears necessary to conserve genetic diversity. BLM has considered this recommendation in the last decade and has managed the herd at an average of 140 adult horses (Table 1). This represents an average of 35 horses over AML.

BLM's mandate, however, is to manage for healthy, self-sustaining herds on healthy rangelands. Habitat objectives in the HMAP are to manage for a slight upward trend in range health (HMAP, BLM-MT-PT-84-019-4321/June 1984). Cumulative impacts, including weather, drought and grazing, have resulted in the apparent trend being down on 76 percent of the range transects (Ricketts, 2004). At this time, it appears that managing the herd closer to the existing AML (85-105 adult horses) is necessary to allow for improving range conditions.

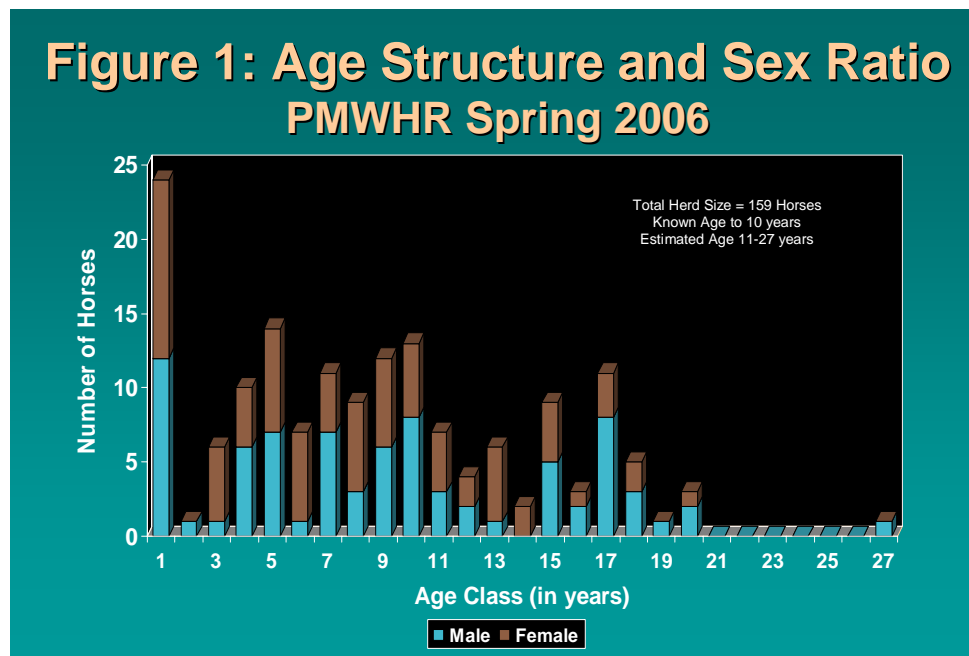
#### **1.5 Herd Census and Distribution**

The Pryor Mountain wild horse population comprises a harem band social structure with associated bachelor groups. Individual horses can be recognized (by coat color and scars, facial and leg markings, and group association) and are tracked annually using a CD-ROM wild horse management database. Within the last decade, population census and distribution monitoring consist of a combination of aerial census (a maximum of twice annually) and year-round ground surveys by BLM employees, student interns, and public volunteers. As the composition of harems and dominant stallions is fluid in nature, this information is tracked on an on-going basis primarily from May through November of each year.

Current estimates place the population at 135 adults and 24 surviving foals from 2005 (Figure 1). The sex ratio is balanced with 79 female and 80 male horses. Based on herd demographics and pregnancy testing (of collected manure samples), a minimum of 26 foals is expected this year. Most foaling will occur in 5 to 15 year old mares. The lack of pregnancy in 2-4 year old mares and mares older than 15 years can be attributed to the previous use of fertility control in this herd. The impacts of winter (2005-2006) mortality and 2006 foaling on herd size will be determined by field personnel this spring and summer.



A typical age structure for a wild ungulate herd is pyramidal in shape with the majority of animals in the youngest age categories. This has historically been (Perkins *et al*, 1979; Garrott and Taylor, 1990; Singer *et al*, 2000) the structure for the PMWHR herd. Currently (Figure 1), there is a tendency for some age groups to be under-represented and either age selective management or mortality has contributed to this condition. The impact of more recent mountain lion predation on the herd is noted in the low number of surviving yearling and two-year old horses. Due to environmental extremes on the PMWHR, there are limited numbers of horses older than 17 years of age.

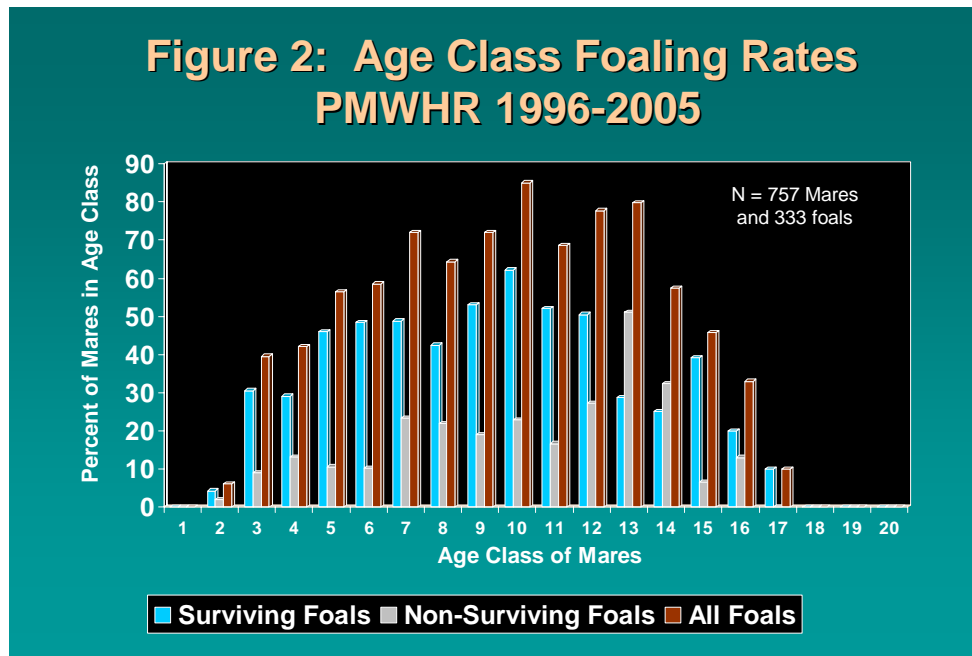


Within the PMWHR, natural topographical barriers restrict herd movement to the west (Crooked Creek drainage) and to the east (Bighorn Canyon). Man-made barriers (fence lines) to the north and south restrict the majority of horses to the designated range on an annual basis. Seasonal harem movement typically results in horses distributed throughout the lower and middle elevations in the winter (Appendix 1) and primarily in the upper elevations in the summer (Appendix 2). In the last decade several harems and bachelors have been using undesignated USFS upper elevation lands from mid-summer through early fall.

## 1.6 Foaling Rates and Foal Survival

Herd foaling rate is a measure of the health of a wild horse population. The PMWHR herd is characterized as having a moderate (recorded) foaling rate averaging ~52% (Table 2), with significant variation (7 to 55%) in the surviving foaling rate (Singer *et al*, 2000). There is also variation in the foaling rate among different age classes of mares (Figure 2). Mares aged 5-14 years appear to be the primary foal producers. Foaling in younger and older mares has been affected by fertility control since treatment began in 2002. As a result, approximately 11 mares should have been infertile for the 2003 breeding season, 18 for the 2004 breeding season and 19 for the 2005 breeding season.

Long-term trends in foal production indicate an average of 34 recorded foals per year and 24 surviving foals annually (Table 1).



Foal survival (Table 2) is known to be impacted by climate, predators, injuries and abandonment. Foal survival has averaged 71% over the last decade, showing a considerable drop in 2004, presumably due to increased mountain lion predation.

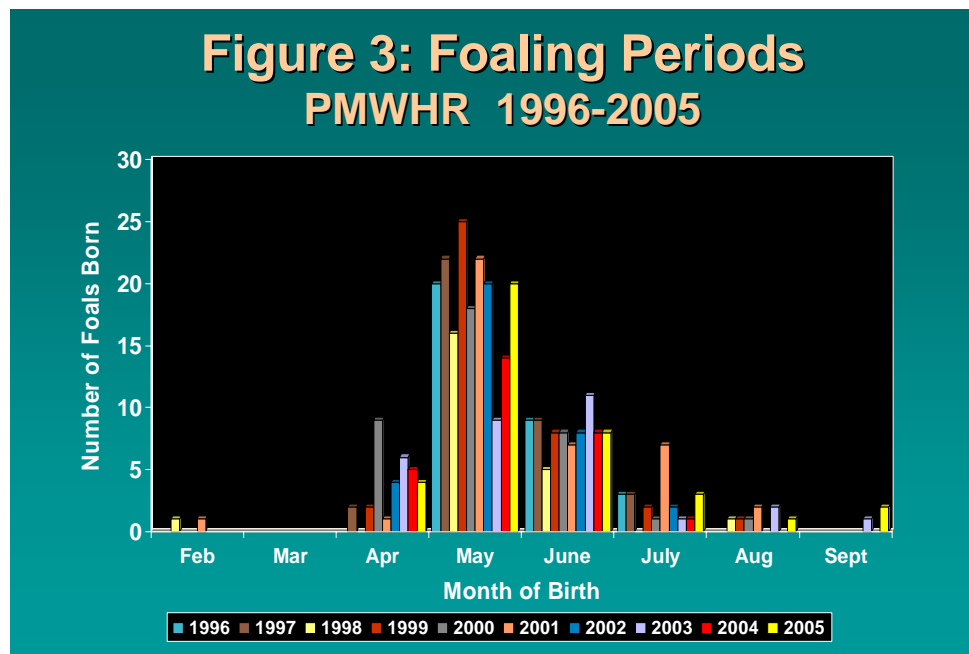
**Table 2: Herd Foaling Rates, Foal Survival and Herd Growth Rates**

Y e a r	Foaling Rate (Recorded)	Foaling Rate (Surviving)	% Survival Of Foal Age Class	Herd Growth Rate (%)
1996	63	55	87	20
1997	54	49	91	10
1998	43	43	100	8
1999	59	40	68	10
2000	49	36	73	9
2001	48	33	68	10
2002	53	38	68	6
2003	48	36	73	-1
2004	45	7	14	-12
2005	57	36	63	12
Annual Average	52	37	71	7

- reported annually in November
- as a percentage of all breeding-age mares (2 years and older)
- includes impacts of previous gathers, mountain lion predation and fertility control



Foaling takes place primarily in the months of May-June (Figure 3) although some variation is present each year. There is no evidence to date that the use of fertility control extends the foaling season or contributes to increased foal loss from the herd.

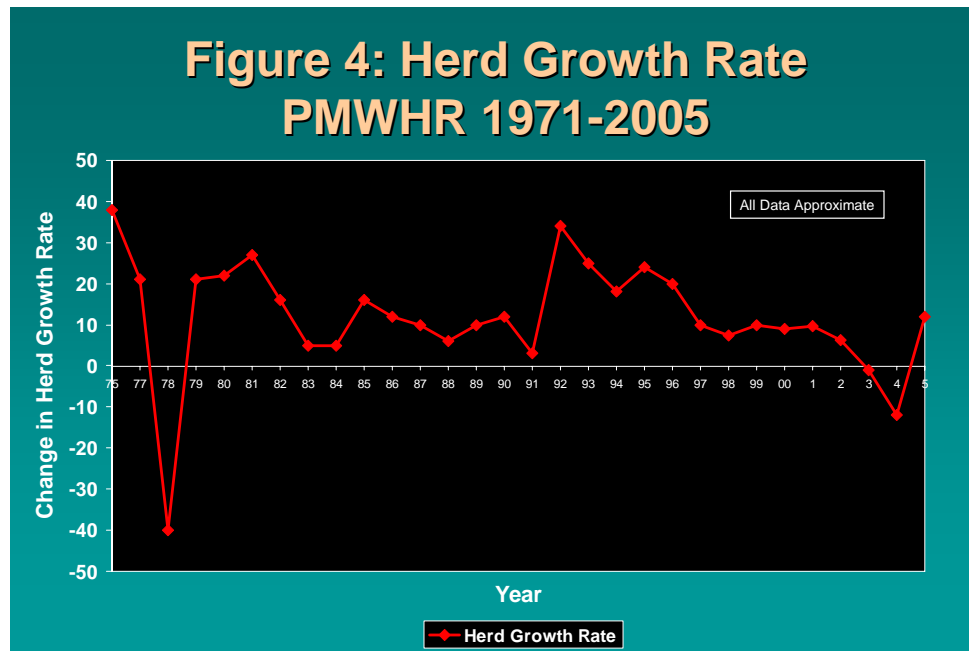


## 1.7 Herd Growth Rate

Herd growth rates have averaged 7%, showing tremendous variation within the last few years (Table 1; Figure 4). Since grazing pressure is often accentuated by wide fluctuations in herd size, BLM has tried to stabilize herd size in the last decade through the use of fertility control and gathers. The herd growth rate dropped below “zero” in 2003 and 2004 due to an unexpected increase in natural foal mortality as well as limited use of age-specific fertility control and natural attrition in older horses. This short-term negative growth is not considered detrimental to overall herd health. Recovery in herd growth was substantial in 2005. BLM continues to carefully track the balance of births, deaths and management impacts in this herd.

## 1.8 Herd Genetic Diversity

Wild horse herds are to be managed for healthy, self sustaining populations. The majority of all evaluated BLM managed herds show adequate genetic diversity in order to support a self-sustaining population (Cothran, personal communication). Research with domestic breeding animals has shown that reduced genetic diversity and inbreeding may result when less than 50 breeding adults are contributing to the next generation (Soule, 1980). This effective genetic



population size is a difficult number to determine and research on wild horses is still inconclusive. Reduced herd diversity increases the possibility that characteristics will appear which might impact herd health or the production of healthy foals.

Baseline genetic diversity has been determined by the analysis of blood samples collected during gathers in 1991, 1994, 1997 and 2001 on the PMWHR. According to these studies (Cothran, 2002; Cothran and Singer, 2000), current levels of genetic diversity within the Pryor Mountain herd are relatively high for a wild horse population, are well above the mean for domestic breeds, and have been sustained over this time period. Any significant loss of diversity over time can be detected by evaluating an inbreeding coefficient which measures observed diversity in the herd in comparison to what might be expected. Presently, there is no evidence of inbreeding in the Pryor herd.

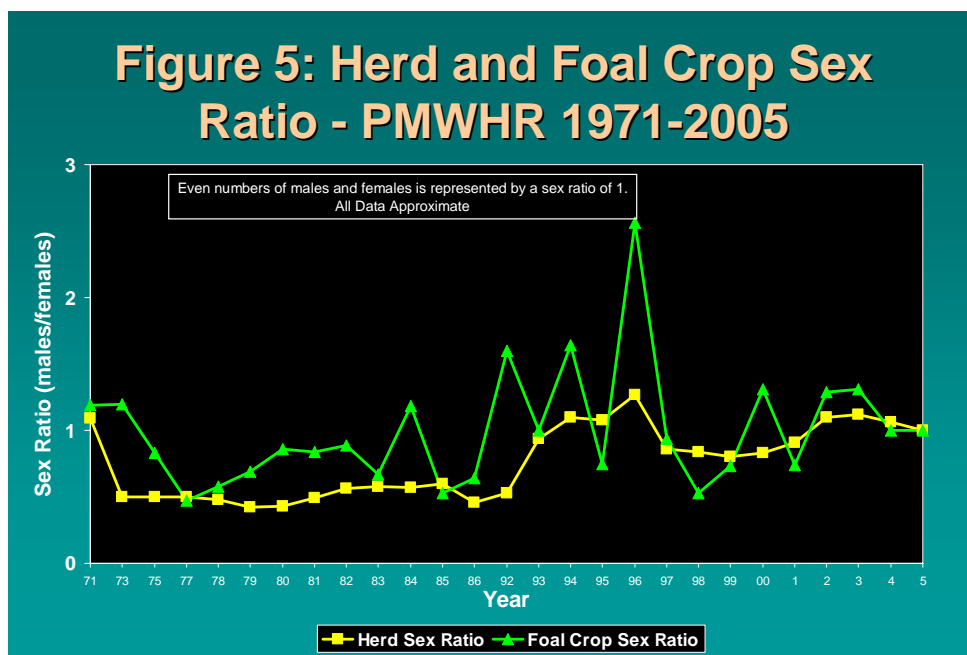
Individual-based genetic studies (Cothran and Singer, 2000) suggest that maintaining a long-term average of 140-150 horses on the PMWHR might conserve the existing herd diversity. However, updated range health and trend studies (Ricketts, 2004) provide clear evidence that the health of the designated range is in a downward trend and some relief from grazing impacts is necessary for recovery. Reduction in herd size should be considered.

Dr. E. Gus Cothran, University of Kentucky, who is recognized as a leading expert in the field of both domestic and wild horse genetic research, has been working with the Pryor herd for well over a decade. Dr. Cothran (April, 2005) writes:

**“Any effort to reduce the Pryor Mountain Wild Horse Herd to 100 horses for a period up to five years, so that range improvements can occur, has the potential to have little impact upon the genetic diversity of the herd. This depends upon maintaining the core of the reproducing individuals and concentrating any removals (or fertility control) on the young and the individuals that are likely past their reproductive years. If the reproductive core is maintained, this will retain most of the genetic variation in the herd (April 2005) “.**

In the past, BLM has managed the herd to conserve the core breeding component, removing only younger animals for the adoption program. The latter is consistent with national selective removal policy for the BLM Wild Horse and Burro program. In addition, fertility control has been applied only temporarily to younger mares that have not yet entered the breeding stage or older mares that have already contributed to the genetics of the herd.

In addition to maintaining the core breeding age horses within the herd, there are other management strategies that may be used to sustain diversity including: skewing the sex ratio in favor of males (increasing the number of breeding males); and the introduction of 1-2 young mares from outside the herd every generation (BLM Wild Horse and Burro Population Viability Forum Recommendations, 1999). While the BLM cannot manage for sex ratio in the foals, the overall herd has been managed to slightly favor males in the last decade (Figure 5). The introduction of outside horses to enhance genetics has happened in the past, but not within the last decade. Given the current level of diversity within the herd, introductions are not considered necessary at this time. If such a need should develop, the BLM is working with genetic researchers to evaluate the potential of the North Needles portion of the Sulphur herd in Utah (see website [http://www.ut.blm.gov/cedarcity\\_fo/cedarpages/blm\\_ccfo\\_sulphur\\_herd.htm](http://www.ut.blm.gov/cedarcity_fo/cedarpages/blm_ccfo_sulphur_herd.htm)) as a source of horses for introductions to the Pryor herd.



## 1.9 Monitoring of Vegetative Trend, Utilization and Climate

Public Law 92-195 (Wild Free-Roaming Horses and Burros Act of 1971) part 1333. (a) states: “The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. He shall consider the recommendations of qualified scientists in the field of biology and ecology.....” and part 1333. (b) states: “In making such determinations the Secretary shall consult with individuals whom he determines have scientific expertise and special knowledge.....” BLM is responsible

for and has done its own range monitoring for actual use, forage utilization and trend as required by law. These data have been used to support determination of excess horses prior to the scheduling of gathers on the Pryors in 1997, 2001 and 2003. Studies and data collection continue and will be used to support the need for any future gather activity.

### **1.9.1 Rangeland Trend**

Prior to 1998, BLM monitoring indicated that the designated range was showing a small upward trend in range health (report available by contacting the BiFO). Since then, a more thorough study (Ricketts, 2004) has indicated that cumulative impacts, including weather, drought and grazing, have resulted in an apparent downward trend on 76% of range transects. Although this study was conducted during a drought, forage production values were “normalized” for more average annual precipitation levels. Based on the results of previous forage competition studies (Kissell, 1996), all forage production was deemed available to the wild horses and was not subdivided for other grazing species.

NRCS was able to provide an estimate for the number of horses the designated range could support given known distribution and seasonal use patterns of the herd. Based on the seasonal grazing scenarios modeled (using slope and distance to water), wild horse carrying capacity varied from 45 horses to 142 horses. The current AML of 85-105 adult horses falls within this range.

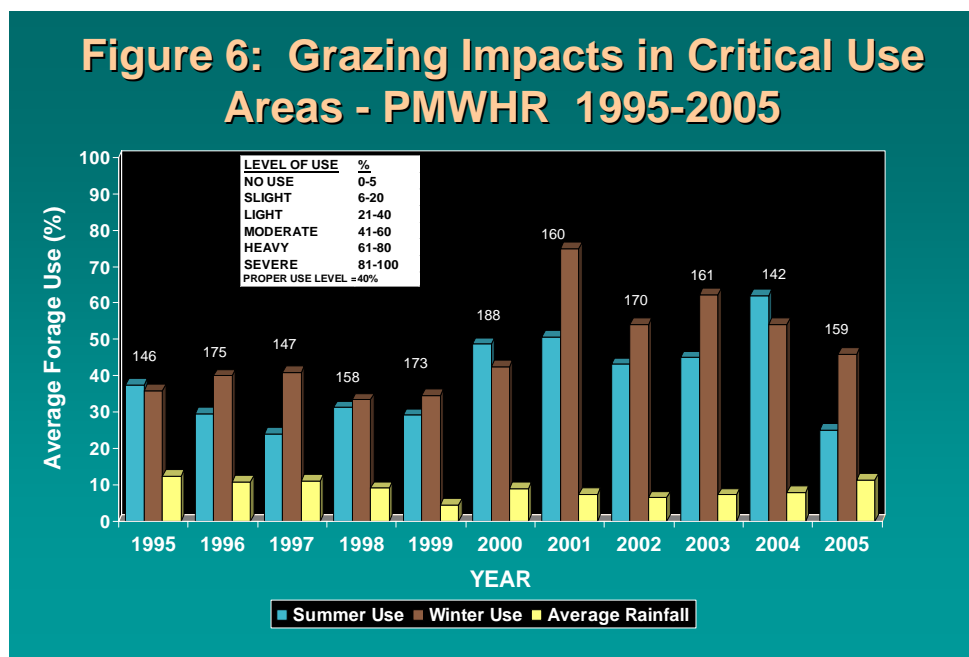
In order to help improve designated range conditions and carrying capacity, inter-agency discussions have focused on range improvement projects (using recommendations from Ricketts, 2004 and Wockner, 2004). Although some of these projects may commence in 2006, it may take several years to generate a desired result. In the interim, alternatives for limiting grazing impacts on the range (especially in known critical-use areas) must be considered.

### **1.9.2 Forage Utilization**

Utilization studies are performed on the PMWHR to identify both winter and summer grazing impacts in critical wild horse use areas (Appendices 1, 2). Utilization data is collected in order to assist with the protection of range health by allowing the evaluation of plant physiological responses to grazing. Studies are performed using the Key Forage Plant method (grass species only), and focus on the most desirable and therefore the most vulnerable forage species at each site. Proper-use levels are developed which allow for sustaining or improving rangeland health under grazing impacts. NRCS has recommended a proper-use factor of 40% on the designated range (Ricketts, 2004).

Average grazing impacts on the PMWHR (Figure 6) have ranged from light to moderate (20-60%) over the last decade under an average of 140 adult horses. Grazing impacts increased during the drought years 2000-2004 and were above proper use levels in most areas both summer and winter. Consistent with historical trends, the Park Service lands and southern reaches of the horse range are more heavily impacted by grazing (table 3). This is particularly reflected in winter data from 2001. Some of the impacts in the southern reaches of the range have been due to trailing cattle activities from neighboring ranches. BLM continues to take actions to eliminate trespass cattle impacts. Low numbers of wild horses use this area but forage production is limited

due to poor soils and low precipitation. Utilization studies (by BLM) on undesignated upper elevation USFS lands show that grazing impacts have been light to moderate. The horses use these areas primarily in late summer/early fall and any grazing on USFS lands has provided obvious relief to the sub-alpine meadows within the designated range.



- Numbers indicate total herd size annually
- Rainfall is reported as an average (in/yr) over entire range. Data developed from <http://www.hprcc.unl.edu/products/historical.htm>

Utilization estimates indicate that annual grazing impacts have exceeded the proper-use level (40%) on both lower and upper elevations of the range during the last decade. Over-utilization contributes to the loss of and/or the reduced health, density, and vigor of native bunch grasses and browse species, which may lead to weed infestation and the conversion of desirable plant communities to undesirable plant communities. In addition, heavy trailing impacts from horses traveling between forage and limited water sites have contributed to reduced vegetative cover, loosening of topsoil, and increased erosion at several locations throughout the range. At this time, it appears that managing the herd closer to the existing AML (85-105 adult horses) is necessary to lower average grazing impacts and allow for range recovery.

**Table 3: Average Seasonal Grazing Impacts on the PMWHR 1995-2005**

AREA OF PMWHR	WINTER AVERAGE	SUMMER AVERAGE
Dry Head South	58.5	46.7
Dry Head North	54.5	33.8
Lower Horse Range	52.3	57.6
Middle Sykes Ridge	26.4	24.8
Upper Sykes Ridge	N/A	40.2
Middle Burnt Timber	38.9	37.8

<b>Upper Burnt Timber</b>	<b>N/A</b>	<b>36.0</b>
<b>USFS undesignated</b>	<b>N/A</b>	<b>34.4</b>

- **Measured as % utilization and compared with a Proper Use Level of 40%**

### **1.9.3 Drought**

Severe drought conditions have been present over most of Montana for four or more consecutive years. Long-term drought impacts continue to exist in areas where short-term relief may be present or develop. Temporary relief from the drought resulted in improved forage response and growth on the PMWHR in 2005. The US Drought Monitor (<http://nris.state.mt.us/drought>, March 7, 2006), however, still indicates abnormally dry to moderate drought conditions for the area. Long-term range recovery may take several seasons of near normal or higher levels of precipitation.

Several years of consecutive drought have decreased plant health, vigor, and forage production. Available research suggests that continued grazing at pre-drought levels, during moderate drought, is probably the greatest cause of range deterioration (Vallentine, 1990). Reduced grazing levels, however, during and following moderate drought should result in less damage to the vegetation and soil and hasten its recovery. This information supports managing the herd closer to the existing AML (85-105 adult horses) in order to reduce grazing impacts and allow for range recovery.

## **1.10 Population Control**

### **1.10.1 Natural Mortality**

Data from earlier studies (see MT-010-01-44) have been used to help determine patterns of natural mortality (due to predators, disease, and environmental exposure) within the PMWHR. These data have been compared to known deaths and carcass retrieval information from more recent studies (Table 1), as well as age-class related survival estimated from tracking known individual horses. There appears to be limited mortality across most age classes, with more deaths occurring among younger and older horses. An average of 20 total horses (10 foals and 10 adults) has been lost annually from the herd since 1996. Foal and yearling losses have been especially high in more recent years. Mares appear to be susceptible to a shorter lifespan, perhaps as a result of energy expenditure over years of foal production.

Foals are believed to be impacted by mountain lion predation on the PMWHR; however, BLM has only been able to positively identify the loss of three foals (# 2222, 2124, and 2029) due to mountain lion predation. A fourth foal (#2230) was attacked by a mountain lion, initially survived and then succumbed the following winter. Perceived impacts are highly variable from year to year. Hunting statistics from Montana Fish, Wildlife and Parks indicate that one or two lions are removed annually from the Pryors, whereas in 2004/2005 three adult mountain lions were successfully hunted. Documented foal mortality reached a highpoint in 2004, with only 4 of 28 foals surviving. Carcass retrieval, foal injuries and predator sightings were highly suggestive of mountain lion predation that year. In 2005, 38 foals were born with 24 foals surviving through the summer and fall (tables 1, 2). There was no evidence that foal losses in 2005 were the result of predation. Also there is no evidence that additional predators, such as wolves, are impacting

the herd.

### **1.10.2      Management**

Fertility control and gathers are tools for herd management. These tools are designed to supplement natural impacts on the herd in efforts to achieve and maintain AML. Gathers are used for necessary and immediate herd size reduction while fertility control is used to reduce herd growth rates and recruitment. Both management tools are generally used under an age-selective or herd-wide protocol (IM No. 2005-206).

### **Fertility Control**

The use of fertility control on mares within the PMWHR began in 2001. Additional fertility control has been remotely-delivered during the summers of 2002 through 2005. Initial treatments focused on younger mares, allowing them time to mature before becoming pregnant and supporting a foal. The treatment of older mares began in 2003 in order to provide these mares a year or more of existence on the range in better physical condition. All of these older mares have made genetic contributions to the herd, and impacts to herd diversity are expected to be minimal. Relevant EAs can be found at [http://www.mt.blm.gov/bifo/whb/Env\\_assessments.html](http://www.mt.blm.gov/bifo/whb/Env_assessments.html).

Use of fertility control can create a higher percentage of core-breeding age animals within the herd which offers genetic advantages to small populations (Cothran, pers comm.). Reduced herd growth also allows for longer periods of time between gathers, reduces the size and impact of gathers and limits the loss of genetic diversity through removals of horses. Remote-delivery of the fertility control vaccine also results in fewer disturbances to the herd and supports a minimum feasible level of management (Wild Free-Roaming Horses and Burros Act; PL 92-195 as amended). Economic modeling (Bartholow, 2004) indicates that the use of fertility control may also significantly reduce management costs for the PMWHR.

The immunocontraceptive Porcine Zona Pellucida (PZP) vaccine meets most of the requirements (Singer and Coates-Markle, 2005) for an ideal contraceptive agent including criteria for safety and efficacy. When injected, PZP vaccine acts as an antigen and causes the mare's immune system to produce antibodies. These antibodies then bind to eggs in the mare's ovaries and effectively block sperm binding and fertilization (ZooMontana, 2000). The vaccine is relatively inexpensive (\$21 per dose) and can be remotely administered in the field. Research has demonstrated that contraceptive efficacy is 90% for mares treated twice in the first year and boosted annually (Turner and Kirkpatrick, 2002). Contracepted mares typically show improvements in body condition and may actually live longer (Turner and Kirkpatrick, 2002).

In addition, PZP contraception appears to be temporary (Kirkpatrick and Turner, 2002), does not appear to cause out-of-season births (Kirkpatrick and Turner, 2003), and has no ill effects on ovarian function if contraception is not repeated for more than 5 consecutive years on a given mare. If mares are already pregnant, the PZP vaccine will not affect normal development of the fetus, hormone health of the mare or behavioral responses to stallions (see EA# MT-010-02-22, Appendix 6). Behavioral studies with the Assateague Island and Shackleford Banks wild horses (Powell, 1999; Rogers, 2001) have shown that contracepted and non-contracepted mares had virtually identical activity budgets, associated in a similar manner with the harem stallion and



showed no increase in harem exchange behavior or change in their social status during the study.

Treated mares are monitored for any potential swelling, stiffness, muscle tremors, nodules, granulomas, abscesses and/or behavioral depression, which might develop subsequent to the darting procedures. A lump that appears or persists longer than 2 weeks after an injection is defined as a persistent nodule. In order for the swelling to be classified as an abscess, it would require the nodule to eventually open at the surface allowing for the drainage of pus, as a sign of infection at the site.

To date, over 50% of the mares have shown no reaction to darting, 5-15% have shown temporary swelling around the injection site, and 20-25% have developed a small nodule about the size of a marble. One mare developed a medium sized swelling and one mare developed an abscess. The latter healed and disappeared quickly. These swellings and nodules are typically very difficult to discern amongst other natural scars within the coats of these wild mares and have never been recorded to cause negative impacts to the quality of life for these mares.

All PZP remote-darting operations typically take place in late summer/early fall in the higher elevations of the range, and are handled by trained Biological Resources Division-USGS and BLM personnel. Minimal darting activity takes place on NPS lands and on upper-elevation undesignated USFS lands. Developed protocol serve as the Standard Operating Procedures (SOPs) for the use of fertility control in the PMWHR. All applications are required to adhere to guidance and research protocol set by the Wild Horse Fertility Control Field Trial Plan (FCFTP) within the nation program (Singer and Coates-Markle, 2005). The FCFTP requires close monitoring of all individual-based study herds in order to evaluate management-level use of the fertility control vaccine under a research protocol.

### **Gathers, Removals and Adoptions**

Within the last decade, excess wild horses have been gathered, removed and adopted from the PMWHR in 1997, 2001 and 2003 (Table 1). Relevant EAs can be found at [http://www.mt.blm.gov/bifo/whb/Env\\_assessments.html](http://www.mt.blm.gov/bifo/whb/Env_assessments.html). Past gather activity was necessary to reduce herd size to a level that would permit both a healthy herd as well as a thriving natural ecological balance on the range. In 1997 and 2001 national contractors were used who provided helicopter and wrangler services. During each of these gathers over 125 horses were brought into the Britton Springs Administrative Site at the base of the PMWHR and held in the corral facility for at least several days. In 2001 the gather was held in September and some younger foals experienced soreness as the result of being herded several miles down the mountain. In 2003 available funds would only support a partial gather and efforts were concentrated in the lower elevations of the range due to drought impacts. All capture, removal and handling activities were conducted in accordance with national and local Standard Operating Procedures (SOPs).

Objectives for these gathers were to conduct a safe and successful event with minimal impact on herd demographics. The core breeding animals were always retained on the range. Removals were selective and focused primarily on young horses that are more suitable for the adoption program. The intent was always to remove no more than one-half of the horses within a given age class. Management retained any horses of rare color in the herd.

In 1997 and 2001 all removed wild horses were adopted to qualified adopters during adoptions held at the Britton Springs Administrative Site. In 2003, the horses were held in the corrals for additional time to improve their condition. All animals were then shipped to the BLM holding facility in Elm Creek, Nebraska where they were successfully placed with qualified adopters via the BLM internet adoption.

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## **2.0 AUTHORITY FOR PROPOSED POPULATION CONTROL**

### **2.1 Relationship to Statutes and Regulations**

The proposed population controls are in conformance with the Wild Free-Roaming Horse and Burro Act of 1971 (PL 92-195 as amended) and with all applicable regulations at 43 CFR (Code of Federal Regulations) 4700, 36 CFR 222, and policies outlined by BLM and USFS. BLM is the lead agency for coordination and implementing wild horse management in the Pryor Mountains.

The Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) as amended, Section 3(b) (1), states that the Secretaries of the Interior and Agriculture shall “determine appropriate management levels of wild free-roaming horses and burros on areas of public lands; and determine whether appropriate management levels should be achieved by the removal or destruction of excess animals, or other options (such as sterilization or natural controls on population levels).” Also 43 CFR 4700.0-6 identifies that “...wild horses shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.” 36 CFR 222.21 states that wild horses within Forest Service territories be administered to “...maintain a thriving ecological balance considering them an integral component of the multiple use resources, and regulating their population and accompanying need for forage and habitat in correlation with uses recognized under the Multiple – Use Sustained Yield Act of 1960.”

Wild horse management is limited to areas inhabited by wild horses at the time of passage of the Act (December 1971) (PL 92-195). Wild horses that have drifted outside the designated boundaries of the Pryor Mountain Wild Horse Range will be removed in accordance with public land laws, rules, regulations, and policy. Management of wild horses “shall be undertaken with the objective of limiting the animals' distribution to herd areas”, which is the “geographic area identified as having been used by a herd as its habitat in 1971” (43 CFR-4710.4 and 43 CFR 4700.0-5), and confined to wild horse territories per the Wild Free-Roaming Horses and Burros Act of 1971 (36 CFR 222 and FSM 2260.3).

### **2.2 Conformance with Existing Land Use Plans (LUPs)**

The Billings Resource Management Plan Final EIS (Sept.1984), Record of Decision, has been reviewed, and the proposed population controls are in conformance with objectives of managing a balance between a healthy population of wild horses and improvements in range condition, wildlife habitat, and watershed condition.

The Pryor Mountain Wild Horse Range Herd Management Plan (BLM-MT-PT-84-019-

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4321/June 1984) and July 1992 revision (MT-025-2-18) provide the authority to manage the horse herd at an established appropriate management level (AML) and make management decisions on the basis of animal type, conformation, color, age, sex, location and free-roaming behavior. The plan directs that management of wild horses be within a balanced program that considers all public values without impairment to the productivity to the land.

As an interagency group, the BLM, Custer National Forest, and the Bighorn Canyon National Recreation Area (NPS) have recently signed a Memorandum of Understanding to establish mutual goals and objectives relating to the management of the PMWHR. All land ownership agencies have agreed that the primary goal with respect to management of the PMWHR is:

“Wild horses are to be managed as free-roaming, self-sustaining populations of healthy animals in a manner that is designed to achieve and maintain a thriving natural ecological balance in keeping with the multiple use management concept for public lands.”

All three land ownership agencies (FS, BLM, and NPS) continue to work on agreements regarding management of the PMWHR. In the short-term, activities will be proposed to help control herd numbers (removals, fertility control) and distribution (water catchment repairs and prescribed burning for range improvement). Any adjustments in AML, boundaries or other long-term goals for PMWHR management will be addressed by a revision of the PMWHR herd plan. This revision is now planned to be addressed concurrently with revision of the land use plans (LUP) for the Custer National Forest and the BLM, BiFO beginning in 2007-2008.

### 3.0 ALTERNATIVES

This chapter describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Alternatives analyzed in detail include the following:

- Alternative 1: **Proposed Action** (Annual Fertility Control on All Mares 11 Years of Age and Older and Bait-trapping of Up to 24 Age-Specific Wild Horses, 2006).
- Alternative 2: Annual Fertility Control on all Mares 11 years of Age and Older and No Bait-trapping or Removal of Horses in 2006.
- Alternative 3: Bait-trapping and Removal of up to 24 age-specific wild horses in 2006 and No Fertility Control
- Alternative 4: No Action (No Fertility Control and No Bait-trapping and Removal of Horses)

Alternatives 1, 2 and 3 were developed based on the need to reduce grazing impacts from wild horses in order to manage the range in a thriving natural ecological balance and multiple-use relationship, to prevent further rangeland health deterioration, and to insure healthy, self-sustaining wild horse populations. In addition, these alternatives address the concern over the current state of the environment as evidenced by monitoring and climate data (presented previously). The application of fertility control is analyzed to determine cost effectiveness and affects on population growth. Given the current status of rangeland health on the Pryors,

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management goals are to:

- 1) suppress herd growth rates at a lower population size that is nearer the established AML within the designated range,
- 2) balance herd size with the land's current ability to sustain and provide habitat for them and other multiple-uses to achieve a "thriving natural ecological balance."
- 3) reduce the need for larger and more intrusive gathers, removals and herd disturbance and
- 4) maintain herd genetic diversity and avoid inbreeding.

Alternative 4 (No Action) does not comply with the 1971 Act nor meet the purpose and need for this action. However, it is included as a basis for comparison and for assessment of the impacts in the event that no population controls occur at this time.

### **3.1 Actions Common to Alternatives 1 and 2 (Fertility Control)**

The following actions are common to both Alternatives 1 and 2:

- The BiFO would propose to apply fertility control to all mares 11 years of age and older (24 total in 2006) within the PMWHR for the purposes of suppressing herd growth rates. Treatment with the PZP vaccine would continue annually through 2010.
- Seven mares 16 years of age and older have already been treated with the PZP vaccine (for at least one year) and would continue to receive annual boosters for the remainder of their lives.
- Thirteen mares 12-15 years of age have also been previously treated with the PZP vaccine (for at least one year) and would receive annual boosters.
- Four mares that are 11 years of age would be added to the program in 2006 and receive a primer and booster (at least one month apart). All mares that are 11 years of age would be added to the treatment program each year (an estimated 5 mares in 2007, 6 mares in 2008, 6 mares in 2009 and 4 mares in 2010).
- Treatment of 11 year old mares would be suspended for at least one year if the surviving foal crop (from the year before) falls below 25% of recorded foals. Treatment of 12-15 year old mares would be suspended for at least one year if the surviving foal crop (from the year before) falls below 10% of recorded foals.
- The use of fertility control within this herd supports research under the BLM Wild Horse and Burro Strategic Research Plan and will adhere to monitoring requirements within the National Wild Horse Fertility Control Field Trial program.
- Minimally-intrusive remote-delivery (darting) of the fertility control vaccine will be used in the field. Darting operations would be conducted in accordance with the Standard Operating Procedures (SOPs) for the treatment of wild horses on the PMWHR with a PZP vaccine (Appendix 3).
- All darting would be done by trained, certified and experienced BLM and BRD-USGS personnel.

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### **3.2 Actions Common to Alternatives 1 and 3 (Bait-trapping and Removal)**

The following actions are common to both Alternatives 1 and 3:

- The BiFO would propose to capture and remove up to 24 age-specific wild horses from the PMWHR including an estimated 12 bachelor (non-harem-holding) stallions (4-8 years of age) and 12 yearlings (or no more than 50% of any age class) in 2006.
- Any additional removal activity in subsequent years (beyond 2006) would require a further determination of excess animals based on utilization, trend and climate data.
- Local selective removal policy adheres to national policy (Gather Policy and Selective Removal Criteria for Wild Horses, Washington Office (IM No. 2005-206). Local policy also strives to retain any horses within the herd that are currently harem stallions or core breeding-age mares (6-10 years old) for the purposes of genetic conservation within small herds.
- Selection of individual horses to be removed may depend on a given animal's susceptibility to the bait-trapping effort. Since the population structure is very fluid on the Pryors, proposed actions may need to be re-evaluated and adjusted during bait-trapping activities.
- The Pryor herd is relatively uniform in type (Sponenberg, pers. comm), and qualities not pertinent to the self-sustaining nature of the herd are not part of the selective removal criteria. However management has previously recognized and retained horses of rare color (represented in less than 10% of the horses in the herd) and may do so in 2006.
- All removal and handling operations would be conducted in accordance with the Standard Operating Procedures (SOPs) for Bait-trapping and removal of excess horses from the PMWHR (Appendix 4). The BLM would be responsible for all compliance to these SOPs.
- The method of capture will be bait-trapping with mineral and/or protein blocks, using temporary traps of portable panels at specified locations throughout the designated range and/or adjacent lands. All "set" traps would be attended. Horses would remain in the traps only long enough to sort out the selected animal for removal and then released on site. No animals would be left in unattended traps.
- Any removed horses would be transported via truck and trailer to the Britton Springs corral facility and prepared for adoption. Blood samples may be drawn from removed horses to monitor for herd genetic diversity.
- All removed horses may be held at the Britton Springs Administrative Site until bait-trapping efforts are completed (~September 30, 2006). Public viewing of these horses will be allowed at scheduled times.
- All removed horses will be available for adoption by a sealed-bid competitive process to qualified and pre-approved individuals as determined by the BiFO. The minimum bid would be \$125 per horse. Details for the adoption will be communicated to the public via a press release.
- Any horses not adopted by sealed bid will be sent to the BLM Rock Springs holding facility in Wyoming. Older bachelor stallions would be gelded and sent to the Wyoming Honor Farm, Riverton, Wyoming for 90-120 days of ground and halter-training. All remaining horses would then be made available to the public again via the BLM internet adoption program.

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### **3.3 Assumptions Common to All Alternatives**

The following assumptions are common to all Alternatives:

- 1) Average values for PMWHR herd demographics from the previous 10 years (Tables 1, 2) are used for all population forecasting over the next 5 years (2005-2010).
- 2) All mares 11 years and older have already made genetic contributions to the herd. This has been verified for all mares proposed for treatment in 2006.
- 3) Treatment with the PZP vaccine provides for at least one year of infertility for up to 90% of all treated mares (Turner and Kirkpatrick, 2002).
- 4) Treatment with contraceptives using the proposed protocol is predicted to be roughly 50% less costly than gather and removal management alone (Bartholow, 2004).
- 5) Bait-trapping and removal of individual horses reduces impacts on the herd and is predicted to be 75% less costly than helicopter gathers and removals.
- 6) Predation impacts on the foal crop may be present but are likely to be highly variable from year to year. No new predators are expected to impact the herd within the next 5 years.
- 7) Cumulative impacts, including weather, drought and grazing, have resulted in the apparent trend being down on the range with range health functioning at a moderate to a moderate-extreme departure from the historic climax plant community (Ricketts, 2004).
- 8) At this time, it appears that managing the Pryor herd closer to the existing AML (85-105 adult horses) is necessary to alleviate grazing impacts and allow for improving range conditions.
- 9) Recovery of the range from these cumulative impacts may take several years of reduced grazing impacts, near normal precipitation levels and effective range improvement projects.
- 10) Range improvement projects (repairs to water catchments and prescribed burns) are scheduled for 2006/2007 and may provide for localized improvements in range health by 2010.
- 11) Any adjustments in AML, boundaries or other long-term goals for PMWHR management will be addressed by a revision of the PMWHR herd plan. This revision is now planned to be addressed concurrently with revision of the land use plans (LUP) for the Custer National Forest and the BLM, BiFO beginning in 2007-2008.

### **3.4 Proposed Action and Alternatives**

#### **3.4.1 Alternative 1, the Proposed Action (Annual Fertility Control on All Mares 11 Years of Age and Older and Bait-trapping and Removal of Up to 24 Age-Specific Wild Horses, 2006):**

Under Alternative 1, the Proposed Action, the BiFO would propose to apply fertility control to all mares 11 years of age and older (24 total in 2006) within the PMWHR for the purposes of suppressing herd growth rates. Treatment with the PZP vaccine would continue annually through 2010. Seven mares 16 years of age and older have already been treated with the Porcine Zona Pellucida (PZP) vaccine for at least one year and would continue to receive annual boosters for the remainder of their lives. Thirteen mares 12-15 years of age have also been treated for at least

one year and would continue to receive boosters. All mares that are 11 years of age would be added to the treatment program each year (4 mares in 2006 and an estimated 5 mares in 2007, 6 mares in 2008, 6 mares in 2009 and 4 mares in 2010).

In addition, the BiFO would propose to capture and remove up to 24 age-specific wild horses from the PMWHR in 2006. As with previous selective removals, the intent would be not to remove any horses that are currently harem stallions or core breeding-age mares (6-10 years old) from the herd. An estimated 12 bachelor stallions (4-8 years of age) and 12 yearlings (no more than 50% of any age class), have been determined excess and would be removed due to deteriorating range conditions.

The following table (table 4) shows expected changes in herd size, growth rate and relationship to AML over the next 5 years under the proposed action. Average values for PMWHR herd demographics (from the previous 10 years) are used for population forecasting over the next 5 years (2005-2010). Under these conditions herd growth is suppressed with fertility control and natural mortality would result in the average loss of 20 horses per year. At least two additional small-scale removal efforts (e.g. in 2008 and 2010\*) might be needed to effectively reduce herd size to the established AML for the designated range by 2010. Economic modeling suggests that this would be the most cost-effective management approach for this herd (see section 3.3).

This conservative approach to herd reduction would provide a buffer for unexpected increases in natural mortality. This approach would also allow management to be very selective in future efforts, removing only younger horses with high adoption potential and retaining the core breeding horses on the range. The average adult herd size would not fall below 100 horses which is important in terms of genetic conservation for small populations. Regular monitoring of range conditions would determine the need for (and size of) additional removals\* in order to further reduce grazing impacts on the range. During this period of time, range improvement projects (repairs to water catchments and prescribed burns) would be scheduled and agency revisions would be occurring to LUPs. These efforts could impact determinations of AML within the next 5 years.

**Table 4: Proposed Action – Fertility Control and Removal**

<b>Year</b>	<b># BAM</b>	<b># Mares on PZP</b>	<b># Mares Fertile</b>	<b>Foals Born</b>	<b>Foals Alive</b>	<b># Removed</b>	<b>Total Herd Size</b>	<b>Growth Rate</b>	<b># over AML</b>
<b>2006</b>	67	19 (03,04)	48	26	19	24	144	<b>5.7%</b>	<b>20</b>
<b>2007</b>	64	22 (04,05)	42	23	16	0	150	<b>4.2%</b>	<b>29</b>
<b>2008</b>	64	24 (06)	40	22	16	24*	132	<b>4.0%</b>	<b>11</b>
<b>2009</b>	64	29 (07)	35	19	14	0	136	<b>3.0%</b>	<b>17</b>
<b>2010</b>	64	29 (08)	35	19	14	24*	116	<b>2.9%</b>	<b>-3</b>



<b>Annual Average</b>	<b>65</b>	<b>25</b>	<b>40</b>	<b>22</b>	<b>16</b>	<b>5</b>	<b>136</b>	<b>4.0%</b>	<b>15</b>
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- Initial herd size of 159 horses (March 2006)
- (..) denotes PZP treatment year
- AML reported as the upper limit of a range (85-105 adult horses)

### 3.4.2 Alternative 2 (Annual Fertility Control on all Mares 11 years of Age and Older and No Bait-trapping or Removal of Horses in 2006):

Under Alternative 2, the BiFO would propose to apply fertility control to all mares 11 years of age and older (24 total in 2006) within the PMWHR for the purposes of suppressing herd growth rates. Treatment with the PZP vaccine would continue annually through 2010. Seven mares 16 years of age and older have already been treated with the Porcine Zona Pellucida (PZP) vaccine for at least one year and would continue to receive annual boosters for the remainder of their lives. Thirteen mares 12-15 years of age have also been treated for at least one year and would continue to receive boosters. All mares that are 11 years of age would be added to the treatment program each year (4 mares in 2006 and an estimated 5 mares in 2007, 6 mares in 2008, 6 mares in 2009 and 4 mares in 2010).

The following table (table 5) shows expected changes in herd size, growth rate and relationship to AML over the next 5 years under alternative 2. Average values for PMWHR herd demographics (from the previous 10 years) are used for population forecasting over the next 5 years (2005-2010). Under these conditions, herd growth is suppressed but natural mortality would not be effective in reducing herd size to the established AML for the designated range by 2010. Grazing impacts would remain at unacceptable levels over the next five years.

**Table 5: Alternative 2 – Fertility Control Only**

<b>Year</b>	<b># BAM</b>	<b># Mares on PZP</b>	<b># Mares Fertile</b>	<b>Foals Born</b>	<b>Foals Alive</b>	<b># Removed</b>	<b>Total Herd Size</b>	<b>Growth Rate</b>	<b># over AML</b>
<b>2006</b>	67	19 (03,04)	48	26	19	0	168	<b>5.7%</b>	<b>44</b>
<b>2007</b>	64	22 (04,05)	42	23	16	0	174	<b>3.6%</b>	<b>53</b>
<b>2008</b>	64	24 (06)	40	22	16	0	180	<b>3.5%</b>	<b>59</b>
<b>2009</b>	64	29 (07)	35	19	14	0	184	<b>2.2%</b>	<b>65</b>
<b>2010</b>	64	29 (08)	35	19	14	0	188	<b>2.2%</b>	<b>69</b>
<b>Annual Average</b>	<b>64</b>	<b>25</b>	<b>40</b>	<b>22</b>	<b>16</b>	<b>0</b>	<b>179</b>	<b>3.4%</b>	<b>58</b>

- Initial herd size of 159 horses (March 2006)
- (..) denotes PZP treatment year

- AML reported as the upper limit of a range (85-105 adult horses)

### 3.4.3 Alternative 3 (Bait-trapping of Up to 24 Age-Specific Wild Horses in 2006 and No Fertility Control):

Under Alternative 3, the BiFO would propose to capture and remove up to 24 age-specific wild horses from the PMWHR in 2006. As with previous selective removals, the intent would be to not remove any horses that are currently harem stallions or core breeding-age mares (6-10 years old) from the herd. An estimated 12 bachelor stallions (4-8 years of age) and 12 yearlings (no more than 50% of any age class), have been determined excess and would be removed due to deteriorating range conditions.

The following table (table 6) shows expected changes in herd size, growth rate and relationship to AML over the next 5 years under alternative 3. Average values for PMWHR herd demographics (from the previous 10 years) are used for population forecasting over the next 5 years (2005-2010). Under these conditions, herd growth is not suppressed by fertility control beyond 2007. Even with the addition of two small-scale removal efforts (e.g. in 2008 and 2010\*), this alternative would not be effective in reducing herd size to the established AML for the designated range by 2010. Additional removals would likely be necessary, larger in scale and include harem stallions and/or breeding-age mares. This action may jeopardize genetic conservation within the herd. Grazing impacts would remain at unacceptable levels over the next five years.

**Table 6: Alternative 3 – Removal Only**

Year	# BAM	# Mares on PZP	# Mares Fertile	Foals Born	Foals Alive	# Removed	Total Herd Size	Growth Rate	# over AML
2006	67	19 (03,04)	48	26	19	24	144	5.7%	20
2007	64	22 (04,05)	42	23	16	0	150	4.2%	29
2008	64	0	64	35	25	24*	141	10.0%	11
2009	64	0	64	35	25	0	156	10.6%	26
2010	64	0	64	35	25	24*	147	9.6%	17
Annual Average	64	N/A	56	31	22	5	148	8%	21

- Initial herd size of 159 horses (March 2006)
- (..) denotes PZP treatment year
- AML reported as the upper limit of a range (85-105 adult horses)

### 3.4.4 **Alternative 4, No Action Alternative (No Fertility Control or Bait-trapping and No Removal of Horses):**

Under alternative 4, the BiFO would not implement additional management actions with the Pryor herd in 2006. Under this alternative, no additional mares would receive fertility control for herd growth suppression, nor would a removal occur for an immediate reduction in herd size. Under this alternative, wild horse numbers would be regulated naturally through predation, disease, and forage, water and space availability. Under these conditions, natural mortality may result in an average loss of 20 horses per year; however it has ranged from a low of 4 horses (1997) to a high of 43 horses (2004).

The following table (table 7) shows expected changes in herd size, growth rate and relationship to AML over the next 5 years under the no action alternative. Average values for PMWHR herd demographics (from the previous last 10 years) are used for population forecasting over the next 5 years (2005-2010). Under these conditions, herd growth is not suppressed by fertility control beyond 2007. Natural mortality would not be effective in reducing herd size to the established AML for the designated range by 2010. Herd size may exceed 200 total horses by 2009 and may be double AML by 2010. Grazing impacts would remain at unacceptable levels over the next five years.

**Table 7: No Action Alternative**

<b>Year</b>	<b># BAM</b>	<b># Mares on PZP</b>	<b># Mares Fertile</b>	<b>Foals Born</b>	<b>Foals Alive</b>	<b># Removed</b>	<b>Total Herd Size</b>	<b>Growth Rate</b>	<b># over AML</b>
<b>2006</b>	67	19 (03,04)	48	26	19	0	168	<b>5.7%</b>	<b>44</b>
<b>2007</b>	64	22 (04,05)	42	23	16	0	174	<b>3.6%</b>	<b>53</b>
<b>2008</b>	64	0	64	35	25	0	189	<b>8.6%</b>	<b>59</b>
<b>2009</b>	64	0	64	35	25	0	204	<b>7.9%</b>	<b>74</b>
<b>2010</b>	64	0	64	35	25	0	219	<b>7.4%</b>	<b>89</b>
<b>Annual Average</b>	<b>64</b>	<b>N/A</b>	<b>56</b>	<b>31</b>	<b>22</b>	<b>0</b>	<b>191</b>	<b>6.6%</b>	<b>64</b>

- Initial herd size of 159 horses (March 2006)
- (..) denotes PZP treatment year
- AML reported as the upper limit of a range (85-105 adult horses)

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### 3.5 Alternatives Considered but Eliminated from Further Analysis

#### 3.5.1 Use of Fertility Control on All Ages of Wild Mares to Suppress Herd Growth Rates:

Under this alternative, all breeding-aged mares (2 years and older) would receive fertility control primers (as necessary) and annual boosters from 2006 to 2010. However, given the unpredictable nature of predation and other impacts causing natural mortality, BLM is concerned that aggressive use of fertility control may result in unacceptable impacts to genetic diversity within small herds such as the Pryors. These are issues that are still being addressed with on-going research. This alternative was therefore considered but eliminated from further analysis due to concerns over unacceptable genetic impacts to the herd at this time.

#### 3.5.2 Large-Scale Gather and Selective Removal of Wild Horses for Population Control:

Under this alternative, the herd would undergo a major helicopter gather and capture of up to 125 horses in order to selectively remove about 50 horses in 2006. This would immediately reduce the herd size to about 100 adult horses. Estimated costs for a removal of this type and size would be four times the cost for a smaller scale bait-trapping effort. Given the current age structure of the herd, harem stallions and mares within the core breeding-age classes (6-10 years old) would need to be removed. This action may jeopardize genetic conservation within the herd. Some horses 10 years of age and older would also need to be removed, making them vulnerable to sale authority. Some public have expressed significant concern over the long-term welfare of any Pryor horses exposed to sale authority. This alternative was considered but eliminated from further analysis due to these concerns at this time.

## 4.0 **AFFECTED ENVIRONMENT**

This chapter describes the affected environment and will assess the environmental impacts on the components of the human environment either affected or potentially affected by the proposed action and alternatives.

### 4.1 Affected Environment

Table 5 summarizes the presence of critical elements within the human environment and other resources of concern in the PMWHR. Elements marked as **present and affected** are discussed in the designated section and evaluated for potential impacts and mitigation measures.

**Table 5. Summary of Critical Elements & Other Resources of Concern within The Human Environment.**

<b>Element of Concern</b>	<b>Present</b>	<b>Affected</b>	<b>Reference Section</b>
Air Quality	Yes	No	-----
Areas of Environmental Concern (ACEC)	Yes	Yes	5.1.5
Cultural Resources	Yes	Yes	5.1.10
Forestry/Timber	Yes	No	-----
Invasive, Non-native Species	Yes	Yes	5.1.11
Soils	Yes	Yes	5.1.8
Special Status Species	Yes	Yes	5.1.9
Vegetation	Yes	Yes	5.1.6
Visual Resources, Recreation, Hunting	Yes	Yes	5.1.4
Waste, Hazardous or Solid	Yes	Yes	5.1.13
Wetland/Riparian Zones	Yes	Yes	5.1.12
Wild Horses	Yes	Yes	5.1.2
Wilderness Study Area (WSA)	Yes	Yes	5.1.3
Wildlife	Yes	Yes	5.1.7

The following resources of concern are either not present or although present, were determined not to be affected or impacted by the proposed or alternative actions and will not be discussed further in this EA: Environmental Justice; Prime or Unique Farmlands; Floodplains; Native American Religious Concerns; Water Quality (Surface or Ground Water); Wild and Scenic Rivers; Fisheries Habitat; and Livestock Grazing.

#### **4.2 Pryor Mountain Wild Horse Range**

The PMWHR is located in the southeastern portion of Carbon County, Montana, and extends into the northern portion of Big Horn County, Wyoming (location information provided at <http://www.mt.blm.gov/bifo/whb/index.html> ). The PMWHR encompasses about 39,650 acres and includes BLM, National Park Service (NPS-BCNRA), Custer National Forest (USFS) and private lands (Krueger). The range is approximately 13 miles north of Lovell, Wyoming.

The PMWHR varies in environment and elevation from a sagebrush / salt-shrub dominated cold desert (6 inches mean annual precipitation) at 3850 feet in Wyoming, to a subalpine setting with fir trees and open meadows (27 inches mean annual precipitation) in Montana at about 8750 feet. The topography is highly variable being characterized by deep, steep-walled canyons, isolated grassy plateaus and foothill slopes. The climate is typical cold desert and can be highly variable. Soils which characterize the range are shallow to moderately deep, loamy, calcareous, moderately alkaline, and a mixture of limestone, sandstone and shale. Due to the young, fragile nature of the soils throughout the horse range, erosion occurs quite easily. Environmental influences, both man-made and natural, have therefore contributed to much erosion and soil loss on the range. This, along with the high lime content, limits the productivity of the soils.

Natural topographical barriers (westside - Crooked Creek; eastside - Bighorn Canyon), as well as man-made barrier fence lines to the north and south, restrict the majority of horses to available range. Otherwise the Pryor herd freely roams throughout the range, largely unrestricted by

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internal fences. Seasonal harem movement typically results in horses distributed throughout the lower and middle elevations in the winter (Appendix 1) and primarily in the upper elevations in the summer (Appendix 2). In the last decade several harems and bachelors have been using undesignated USFS upper elevation lands from mid-summer through early fall.

Additional background information is presented in Section 1.0.

## **5.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

Resources impacted by the proposed action, alternatives and no action alternative will be evaluated for direct, indirect and cumulative consequences. Mitigation measures will be provided as needed. No irretrievable or irreversible impacts to any resource value are anticipated with implementation of the proposed action.

### **5.1 Impacts Common to Alternatives 1 (Proposed Action), 2 and 3**

Impacts to individual wild horses and the population as well as other resource values and uses on the PMWHR, as a result of actions associated with population control of the herd have been well-documented in previous EAs (2001-2005). Impacts to the PMWHR as a result of the proposed action and/or alternatives would be similar to those described in previous EAs. These EAs can be found at [http://www.mt.blm.gov/bifo/whb/Env\\_assessments.html](http://www.mt.blm.gov/bifo/whb/Env_assessments.html).

#### **5.1.2 Wild Horses**

The proposed action and alternatives incorporate proven Standard Operating Procedures (SOPs, Appendices 3, 4) which represent the “best methods” for ensuring quality results, minimizing risks and reducing impacts associated with this activity. All activity would be carried out according to current BLM policy with the intent of conducting as safe and humane an operation as possible. Protocol have been specifically developed for remote-delivery techniques of the fertility control vaccine and for the capture (bait-trapping) and removal of wild horses. If conditions warrant, and animal health or welfare is in jeopardy at any time, population control efforts would be delayed or halted.

#### **Direct Individual Impacts**

Impacts to the wild horses take the form of direct and indirect impacts and may occur on either the individual or the population as a whole. Direct individual impacts are those impacts that are immediately associated with implementation of the proposed action or alternatives. These impacts include stress associated with the remote-darting activity for delivery of the vaccine and handling stress associated with the capture, sorting, animal handling and preparation, and transportation of the animals. The intensity of these impacts vary by individual and are indicated by behaviors ranging from nervous agitation to physical distress. There are no indications that these direct impacts persist beyond a short time following the stress event. There would be an additional impact to individual animals at the injection site following darting. These impacts (granulomas, nodules) are monitored on a regular basis under research protocol, do not appear to cause pain or discomfort to the mares, and typically subside with time. Mortality and/or permanent injury of individuals from direct impacts due to darting is unlikely.

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In order to mitigate the impacts of fertility control, all vaccine would be controlled, handled and administered by trained, certified and experienced wildlife darters. These BLM or BRD-USGS personnel would be on-site during all phases of the operation, and would be responsible for the accurate identification of individual age-specific mares. A project veterinarian would be on-call, at all times during the operation. Veterinary emergencies have been discussed in detail within the SOPs.

The bait-trapping contract specifications require humane treatment and care of animals during capture and removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. Safety and performance records, and years of experience in bait-trapping and capturing wild horses would be weighed carefully during selection of the contractor. Experienced BLM personnel would be responsible for compliance with the SOPs during all phases of the capture operation. A project veterinarian would either be on-site, or on-call, at all times during the operation.

In order to mitigate the impacts of capture activities, traps would be located to cause as little injury and stress to the horses as possible, and would be constructed in a fashion to minimize the potential for injury. Gates would be wired open at all unmanned trap sites, and would be left closed only when needed to hold horses inside. All traps “set” for capture must be manned at all times.

Stress and injury to the wild horses would be minimized during sorting and loading procedures within the temporary traps. Minor injuries such as cuts and scraps, are generally unavoidable on horses trapped on rugged terrain. Major problems, such as broken limbs and/or fatalities, are expected to be avoided with bait-trapping. Upon delivery of captured horses to the Britton Springs, injury rate and other aspects of the capture operation would be evaluated. If it is determined that the risk associated with injuries is significantly greater than expected, then trapping efforts would be halted.

### **Indirect Individual Impacts**

Indirect individual impacts are those impacts that occur after the initial stress event and may develop as a result of the application of fertility control vaccine. Some of these impacts have yet to be documented for wild horses in the scientific literature but may include increased social disorder among the horses and/or a prolonged foaling season. Impacts may also result in an opportunity for increased fitness and body condition in treated older mares. Other potential physiological impacts of the PZP vaccine were provided as background information (Section 1.10.2). All treated mares would continue to be monitored for behavior, body condition and foaling under research protocol. Behavioral data would be compared to existing baseline data and control studies on the Pryors.

Indirect individual impacts due to capture may include spontaneous abortions in mares and increased social displacement and conflict in stallions. These impacts, like direct individual impacts, are known to occur intermittently. Trapping may not be conducted 6 weeks on either side of peak foaling season (April 1 to June 30) to reduce the chance of injury or stress to pregnant mares or mares with young foals. Trapping operations would not negatively impact



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wild horse harem composition. Captured horses would be sorted as soon as possible in the trap and while selected animals are held, the remaining animals would be released. Certain circumstances, during the capture, may prevent this from happening and would be handled on a case-by-case basis. All removed animals would be sorted by gender and age at the Britton Springs corral facility. Companion animals would be provided as numbers and individual animal behavior allows.

### **Direct Population Impacts**

Population-wide direct impacts are immediate effects which would occur during or immediately following implementation of the proposed action or alternatives. Remote-delivery of the fertility control vaccine would result in fewer disturbances to the herd and support a minimum feasible level of management. Direct population-wide impacts might consist of a heightened awareness of human presence following the darting activity. This is likely to be temporary in nature but may persist for some time in some mares. Repeated (annual) remote-darting of older mares does not appear to cause cumulative horse/harem sensitivity or stress within the Pryor herd.

No significant population-wide impacts have been detected on the herd as the direct or indirect result of previous gathers. Impacts may include the displacement of bands during capture in traps, the modification of herd demographics (age and sex ratios), the separation of individual horses from bands, the reestablishment of bands following release, and the removal of animals from the population. With the exception of changes to herd demographics, due to selective removals, direct population wide impacts have historically proven to be temporary in nature with most if not all social impacts disappearing within hours to several days following release of horses. No observable effects associated with bait-trapping on the Pryors would be expected except a heightened awareness of human presence.

### **Indirect Population Impacts**

Population-wide indirect impacts would not appear immediately as a tangible effect and may be difficult to quantify. These are primarily associated with the use of fertility control and reductions in fecundity in treated wild mares. All 11 year old mares would be added to the treatment program each year (4 mares in 2006 and an estimated 5 mares in 2007, 6 mares in 2008, 6 mares in 2009 and 4 mares in 2010). A total of 24 mares would be impacted in 2006. Fertility control applied in 2006 would induce at least one year of infertility in 2007, impacting the 2008 foal crop. These impacts are discussed in Section 3.4 and presented in tables 4-7.

Use of fertility control can create a higher percentage of core-breeding age animals within the herd which offers genetic advantages to small populations. Reduced herd growth allows for longer periods of time between gathers, reduces the size and impact of gathers and limits the loss of genetic diversity through removals of horses.

Removal of horses from the Pryor herd is not expected to have significant impacts on population demographics. Within the last decade the BLM has managed the herd to maintain the core breeding component, with younger animals primarily being removed. The proposed action and removal alternatives would also maintain the harem stallions and core breeding-age mares (6-10 year olds) on the range. Proposed removals may slightly favor males resulting in the herd sex

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ratio temporarily being skewed towards females. Natural mortality in older mares is expected to balance the herd sex ratio in time.

In wild horses, a more uniform age structure may provide the population resilience in the face of environmental extremes or catastrophes. Horses selected for removal would be taken from the most abundant age classes, ensuring that sufficient animals are left on the range (no more than 50% of the age class would be removed).

### **Cumulative Impacts to the PMWHR Herd**

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health and proper management of wild horses within the established boundaries of the PMWHR.

Past, present, and reasonably foreseeable activities that would be expected to contribute to the cumulative impacts of implementing the proposed action or alternatives would include past, present and future wild horse selective removals, fertility control treatments, natural mortality including variable predation, disturbance due to recreation and hunting, and increased or decreased size and quality of rangeland available for wild horse use. BLM would identify these impacts as they occur and mitigate them as needed on a project specific basis to maintain a thriving natural ecological balance and maintain acceptable levels of herd health. The Proposed Action would contribute to the cumulative impacts of future actions by maintaining the wild horse population nearer AML. Monitoring and management actions would establish a process whereby biological and/or genetic issues would be identified and resolved over time.

The cumulative impacts of the proposed action and alternatives on foal production, herd size and growth over the next five years is discussed in section 3.4 and presented in tables 4-6. In addition, the proposed action and alternatives have been evaluated for cumulative impacts to the demographics (size, age structure, sex ratio) of the herd over time using WinEquus (Wild Horse Population Model Version 1.4; April 2, 2002). Parameters and output for these population modeling runs are on file at the BiFO. Modeling efforts forecast that the cumulative impacts for the proposed action and alternatives are not expected to reduce herd growth rates below a sustainable level under conditions of average natural mortality. In addition, the average adult herd size would not fall below the existing AML of 105 adult horses, an important consideration in terms of maintaining genetic diversity within the Pryor herd.

Due to the relatively long generation time of horses (~10 years) and the long reproductive life-span of individual horses, the loss of genetic material from the herd is relatively slow and able to be monitored and mitigated by management. All mares 11 years and older have already made genetic contributions to the herd (data on file at the BiFO). There would be minimal impact to herd genetic diversity by reducing the lifetime contribution of older mares by an estimated 1-4

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foals. Given the current levels of genetic diversity in the Pryor horses, suppressing herd growth rates over a five year period, in combination with small-scale removals to reduce herd size, would not result in deleterious cumulative genetic impacts (see Section 1.8). During future removals, BLM would make every effort to maintain the reproductive core of the herd. BLM would continue to monitor herd genetics and consider either increasing herd size and/or introducing new genetic material (in the form of 1-2 young mares) if the herd continues to be managed closer to AML for more than five years (recommendations made by G. Cothran, April 2005).

Cumulative impacts, including weather, drought and grazing, have resulted in the apparent trend being down on the range with range health functioning at a moderate to a moderate-extreme departure from the historic climax plant community (NRCS, 2004). Recovery of the range from these cumulative impacts may take multiple years of reduced grazing impacts, near normal precipitation levels and effective range improvement projects. Lower horse densities and slower rates of population growth would allow vegetative resources, riparian areas, and other natural resources time to rest and recover from forage utilization, water usage, and hoof impacts. Reduction of current wild horse populations would provide opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. Decreased forage demands on drought-stressed resources should result in improved wild horse body conditions.

Range improvement projects (repairs to water catchments and prescribed burns) are scheduled for 2006/2007 and may provide for localized improvements in range health by 2010. Any adjustments in AML, boundaries or other long-term goals for PMWHR management will be addressed by a revision of the PMWHR herd plan. This revision is now planned to be addressed concurrently with revision of the land use plans (LUP) for the Custer National Forest and the BLM, BiFO beginning in 2007-2008.

### **5.1.3 Wilderness Study Areas (WSA)**

Three BLM wilderness study areas (WSAs), containing approximately 23,000 acres, exist within the boundaries of the PMWHR including Pryor Mountain, Burnt Timber Canyon and Bighorn Tack-On. In addition, sections of Lost Water Canyon (USFS recommended wilderness and Research Natural Area) and the Bighorn Canyon National Recreational Area (BCNRA, NPS) are contained within horse range boundaries. As such, wilderness values must be considered, and not impaired, before Congress makes a decision on final status. Certain activities are restricted within these areas including off-road vehicle use.

Maps would be provided to the bait-trapping Contractor that clearly demarks appropriate boundaries and operative restrictions. Standard operating procedures in the sighting and construction of traps would avoid adverse impacts from trap placement, construction, or operation. Each trap site would be selected after determining the habits of the animals and observing the topography of the area. Trap sites would be located to cause as little damage to the natural resources of the area as possible. Sites would be located near existing roads when possible. Operations would not take place when conditions are so wet that excessive and irreparable resource damage would occur. The Contractor may be required to change or move

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trap locations if unacceptable impacts are determined by the BLM.

All temporary trap materials would be promptly removed following completion of trapping at a particular site. The Contractor is required to use and leave each site in such a condition that “wilderness values are not impaired”. This requirement would be evaluated by the BLM.

Indirect impacts to wilderness values are expected as improved ecological conditions of plant communities, aesthetically more appealing to the public than the existing situation, would result from decreased horse populations.

#### **5.1.4 Visual Resources, Recreation and Hunting**

Recreation activities within the horse range are varied and include hiking, backpacking, photography (video and still), hunting, fishing, camping, spelunking, sightseeing, and scenic viewing of wild horses, wildlife and many other aspects of this unique area. Big game hunting (primarily mule deer, mountain lion, bear and bighorn sheep) occurs throughout the fall, winter and spring of each year and often covers all elevations of the range.

Visitor impact days of recreation and sightseeing have been increasing dramatically within the last decade, primarily due to the attention brought to the range by professional film companies and photographers and special interest groups as well as various socio-economic issues. Commercial activity has been active and primarily in the form of documentary and videotography permits. Outfitter permits have been issued for the PMWHR in the past and one permit currently exists. Additional permits for this type of activity have not been issued since 2000 and are currently on hold pending the outcome of the Herd Plan Revision. Increased recreational use of the PMWHR may impact habitat availability for the horses.

Initiation of fertility control darting activity would be communicated to the public via a press release. Updates would be provided, as requested, by calling the BiFO at 406-896-5013. In an effort to promote education and ensure the safety and welfare of all persons during the darting period, management would provide handouts explaining the on-going activity to public visitors. Mitigation measures would include early and repeated notification to the public regarding proposed activities and close inter-agency co-ordination during the darting period. Fertility control efforts on NPS lands would be coordinated with that agency and handouts would be made available to the public at the BCNRA Visitors Center, Lovell, Wyoming.

Any media or public interested in opportunities for field viewing of darting activities would be encouraged to call the BiFO to make necessary arrangements.

Trapping would be restricted to the PMWHR and immediate adjacent federal lands. BLM would seek permission from the Custer National Forest and National Park Service in order to set up temporary traps or perform any trapping-related activity within their lands. Bait-trapping efforts would focus on specific areas of the range at a time. Wherever possible, traps would be constructed in such a manner as to not block vehicular access on existing roads. Any and all off-road activities would be minimized to the extent possible.

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In an effort to facilitate media and public interest and attention towards the wild horse trapping and removal activity, BLM management would schedule public viewing periods of any horses held at the Britton Springs Administrative Site. Up-to-date information on trapping and removal efforts would be made available to the public by calling the BIFO.

Due to the unpredictable and sensitive nature of bait-trapping in remote-locations, scheduled viewing of the actual trapping activities in the field by the public and media is unlikely. However, if opportunities are possible, the public must adhere to guidance from the Contractor and BLM and any viewing must be monitored by the BLM. In these instances, the Contractor and BLM would assure that members of the public are in safe observation areas before commencing work activities.

Due to the minimally-intrusive nature of bait-trapping, BLM does not expect to close any areas of the horse range at any time during these efforts. If the Contractor has concerns that members of the public are interfering with bait-trapping activities, emergency closures within the PMWHR may be considered.

Direct impacts would be increased travel on main roads as horses are moved from temporary trap sites to the Britton Springs Administrative Site. Other direct impacts may include disruption of a hunt or recreation experience if horses are moved through the area. These impacts would be minimal and temporary in nature. A summer and early fall scheduling of the bait-trapping of wild horses should mitigate, if not eliminate, most conflicts with mule deer, black bear and bighorn sheep hunters on the PMWHR.

#### **5.1.5 Areas of Critical Environmental Concern (ACEC)**

The East Pryor Mountains (including the PMWHR) were designated as an ACEC in March 1999. The area is to be managed per VRM Class II objectives. Goals are to conserve the area for wild horse and paleontological values, provide recreational use and enhance fish and wildlife habitat.

Most horse access and darting activities are likely to happen on foot within reasonable hiking distances of wilderness roads. Therefore, any impacts would be considered as temporary disturbances and no irretrievable, irreversible, or cumulative impacts to any identified ACEC values are anticipated.

Standard operating procedures in the sighting and construction of traps would avoid adverse impacts from trap placement, construction, or operation. Each trap site would be selected after determining the habits of the animals and observing the topography of the area. Trap sites would be located to cause as little damage to the natural resources of the area as possible. Sites would be located near existing roads when possible. Operations would not take place when conditions are so wet that excessive and irreparable resource damage would occur. The Contractor may be required to change or move trap locations if unacceptable impacts are determined by the BLM.

#### **5.1.6 Vegetation**

Vegetation within the PMWHR is very diverse in both density and composition. It tends to occur in belts, including subalpine meadows (higher elevations), conifer grassland/shrub, mountain

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shrub, and red desert/saltbrush in the very lowest elevations. The upper elevations support a wide variety of plant species, including alpine fir, and perennial forbs, sedges and grasses. In areas where the vegetative cover is quite dense, the watershed condition ranges from fair to good. The mid-elevations are characterized by stands of Douglas Fir and are interspersed with limber pine. There are occasional fingers of open meadows supporting grasses, forbs and sagebrush. The next belt of mountain shrubs includes primarily juniper, mountain mahogany and big sagebrush. On the lower portions of red desert and salt-shrub, vegetation is generally sparse and scattered with significant amounts of bare soil. In these areas the watershed conditions remain poor to fair. The west side of the range, along Crooked Creek, has distinctly different vegetation including broadleaf shrubs, due to the permanent supply of water.

Adverse impacts to vegetation with implementation of fertility control would include slight surface disturbance and trampling of native vegetation, to some extent, during the darting process. Most darting activities would happen on foot within reasonable hiking distances of wilderness roads. Therefore any impacts would be considered as temporary disturbances and no irretrievable, irreversible, or cumulative impacts to vegetation are anticipated.

During capture activities, direct impacts would consist of disturbance to vegetation and soils immediately in and around the temporary trap. Impacts would be created by vehicle traffic and hoof action as a result of concentrating horses, and could be locally severe in the immediate vicinity of the trap. Generally, these sites would be small (less than one quarter acre) in size. Any impacts would remain site specific and isolated in nature. In addition, most trap sites would be selected to enable relatively easy access by transportation vehicles and logistical support equipment. Normally traps are located near or on roads, pullouts, water haul sites, or other flat areas which have been previously disturbed. These common practices would minimize the cumulative effects of these impacts.

Indirect impacts of the proposed action or alternatives would be the opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. Reduced concentrations of wild horses would contribute to the improvement of vegetative resources. Forage utilization levels would be reduced which would improve forage availability, resulting in increased density, cover, plant vigor, seed production, seedling establishment, and forage production.

#### **5.1.7 Wildlife**

This PMWHR supports a variety of large and small wildlife species throughout the year. The primary game species are mule deer, bighorn sheep and black bear. Research has been done to identify management actions that would support a viable bighorn sheep population within the BCNRA. Introductions were initiated 30 years ago but the population continues to experience instability in its size (range 100-200 animals). Mule deer herds tend to use the lower elevations during the winter and primarily move north of the PMWHR during the summer period. Although grazing allotments do not exist within the boundaries of the PMWHR, trespass cattle have had a limited but recurring impact on vegetation within some of the lower elevation range. This has primarily been the result of drifting cattle during authorized (NPS) trailing activities. To the extent possible, the agencies have worked with local ranchers to curtail this trespass activity.

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Under the proposed action and alternatives, the potential exists for a temporary displacement of wildlife from disturbance associated with the darting activity. These impacts would be temporary and none would persist beyond a few hours of the darting procedure. The dart gun would remain unloaded until the horse has been selected and it is safe to proceed. No attempts would be made when wildlife are lingering within a 30 m radius of the target animal. No attempts would be made in high wind. No impact to avian species would be expected.

Some mammals, reptiles, and birds may be temporarily displaced by the construction and use of temporary capture sites. These impacts would be minimal, temporary, and of short duration. There is a slight possibility that non-mobile or site-specific animals would be trampled. No direct impacts are expected to avian populations with the exception of possible displacement from small areas of their habitat. This impact would be minimal, temporary, and short-term in nature. The major use by nongame birds appears to occur during the spring and summer months. All nesting and fledgling of young would be completed by the time of the bait-trapping.

Temporary capture traps would be constructed in a fashion to minimize the potential for injury to wildlife. Gates would be wired open at all unmanned trap sites, and would be left closed only when needed to hold horses inside. All traps "set" for capture must be manned at all times. Montana Fish, Wildlife and Parks and/or Wyoming Game and Fish would be notified as soon as possible if any wildlife became injured during capture operations. Wildlife caught inside traps would be released immediately.

A reduction in the number of wild horses from current levels would decrease competition with wildlife for available cover, space, forage, inter-specific stress and competition, and water. Wild horses often display dominant behavior over wildlife species at water sites forcing animals to wait or go elsewhere for water. A reduction in forage utilization levels and hoof action would improve riparian habitat condition. Reduced utilization levels should produce increased plant vigor, seed production, seedling establishment, and ecological health of the habitat.

#### **5.1.8 Soils**

The proposed action and removal alternatives would result in some disturbance to soils and vegetation in the vicinity of the traps. Aggregate structure can be destroyed, deep hoof prints could modify and influence surface drainage, additional compaction of the soil and trampling of vegetation can result. The degree of these impacts would be dependent on soil moisture conditions, the concentration of horses and the overall amount of time horses are present.

The most severe impacts to the soil resource would be expected near and in temporary traps. Dry soil conditions at the time of the bait-trapping would decrease the potential for compaction and deep hoof prints, but soil particles would be more susceptible to wind erosion due to reduced aggregate stability. These impacts to the soil resource would be localized and generally short-term, unless severe adverse climatic conditions followed shortly after use of the trap site. The latter would further displace or remove soil materials by wind or water erosion. Any temporary trap sites would be monitored the following growing season to insure that the native perennial plant community would be capable of maintaining adequate soil cover to prevent wind or water erosion.



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### **5.1.9 Special Status Species**

The BLM is mandated to protect and manage threatened, endangered, candidate, proposed, and sensitive plant species and their habitat. Several rare and sensitive plants occur in the arid and semi-arid plant communities of the Pryor Mountains. Among these is Lesquerella lesicii (Pryor Mountain bladderpod), which exists within three areas of the PMWHR, including Mystery Cave, Big Coulee and Sykes Ridge. The largest population occurs on Sykes Ridge, in an area where horses may also be found. In addition, there are other rare and sensitive endemics on the range including seven subpopulations (two on Burnt Timber Ridge) of Shoshonea pulvinata (shoshonea). At this time, all populations appear to be thriving but there is concern regarding the potential impact of trampling especially during bait-trapping activities.

Based on the typical distribution patterns for Pryor horses in the summer and fall, it is expected that most horses would be bait-trapped in the upper elevations of the range. It is not expected that much trapping activity would occur in the mid-elevations of the range or Big Coulee. However, if any temporary traps are needed in these areas, they would not be constructed within close proximity of known sensitive plant populations.

Trap sites would be located to cause as little damage to the natural resources of the area as possible. Operations would not take place when conditions are so wet that excessive and irreparable resource damage would occur. Sites would be located near existing roads when possible. Prior to selecting a site and setting up a trap, BLM would conduct all necessary T&E clearances.

### **5.1.10 Cultural Resources**

The Pryor Mountains cultural area is defined as a high elevation resource procurement zone. In terms of the cultural resources contained therein, this designation implies a special use area rather than a habitation area. Prehistoric cultural resources are characterized by short-term resource extraction and other limited use sites, with few longer term occupations evident. Occupations are mainly in the form of tepee rings, open campsites and hunting camps/stands. Also present at high elevations in the Pryors are the remains of prehistoric “vision quest” or “fasting bed” sites, especially along the exposed rims. Prehistoric cultural sites in the Pryors are mainly of a limited or ephemeral duration, and as such are seldom more complex than surface indications of use. Little impact to these sites is anticipated from activities associated with wild horses.

Historic properties may occasionally be encountered, mainly historic campsites and resource extraction sites such as cattle herding, mining and timber harvest. Some historic cabins are present. As with prehistoric sites, little impact to these sites is anticipated from activities associated with wild horses.

Direct and indirect impacts to cultural resources would occur from increased erosion and from trampling damage in areas where there are concentrations of horses. Impacts to cultural resources are not anticipated to occur because trap sites would be inventoried for cultural resources prior to selection. Activities associated with specific locations such as horse trapping or confinement require a Class III inventory of the immediate locality. The BiFO archeologist would review all

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proposed sites to determine if these have had a cultural resources inventory and/or if a new inventory is required. If cultural resources are encountered at proposed sites, these locations would not be utilized unless they could be modified to avoid impacts.

#### **5.1.11 Invasive, Non-Native Species**

Noxious weed and invasive non-native species introduction and proliferation are of growing concern among local and regional interests. Direct impacts of the proposed action and alternatives would include potential importation or transportation of new species of weeds to the area, spread of existing noxious weed seeds and plant parts to new areas, and increases in the size of existing weed infestation sites. These impacts would potentially be accomplished by contractor vehicles entering the project area and through feeding of contaminated hay to captured horses which are released before seeds pass through their digestive system. Any off-road equipment that has been exposed to weed infestations would be cleaned before moving into relatively weed free areas. The use of certified weed free hay is a requirement of the bait-trapping contract.

Despite these short-term risks, with the reduction in wild horse numbers, and the subsequent recovery of the native vegetation, fewer disturbed sites would be available for non-native plant species to invade.

#### **5.1.12 Wetland/Riparian Zones**

Riparian areas are limited within the PMWHR and exist as 2 perennial springs (Layout and Crooked Creek) and 2 permanent springs (Cottonwood and Sykes) in the lower elevations and several seeps and man-made reservoirs in the upper elevations. Wild horses contribute to riparian degradation through removal of riparian vegetation and by trailing/trampling which compacts soil and alters stream banks. Riparian sites within the PMWHR have not been recently assessed for riparian functionality, but are heavily utilized especially when the water flow is low (late summer) and water availability is limited during droughts. This is the sixth consecutive year of drought in the area.

Darting activity with the fertility control vaccine would not be expected to have any direct impacts on riparian areas. It is not expected that bait-traps would be set in the vicinity of water sources. However, if it becomes necessary to set a trap near a water source, the trap would be constructed so that no riparian vegetation is contained within them. Impacts to riparian vegetation and/or running water if located within a trap (and available to horses) would be mitigated by removing horses from the trap immediately upon capture. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.

Reduction of wild horse populations from current levels would decrease competition for available water sources which should lead to a reduction in hoof action around springs and reservoirs and improved riparian habitat condition.

#### **5.1.13 Waste, Hazardous or Solid**

Syringes, darts, needles, and vaccine containers, used in darting horses with the fertility control vaccine and during preparation of horses for adoption, are considered regulated medical waste.

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Regulated medical waste would be placed in leak proof containers that are contained in a red plastic bag labelled medical waste. Medical waste would be handled and transported separately from other waste to an approved disposal facility. The amount of regulated waste that would be generated would be minimal and not result in any threat to the environment.

## **5.2 Alternative 4: No Action (No Fertility Control and No Bait-trapping of Horses)**

Impacts to resource values and uses within the PMWHR as a result of the no action alternative are presented below.

### **5.2.1 Direct Impacts**

Under the No Action alternative, excess animals would not be removed at this time and no additional fertility control treatments would occur. The cumulative impacts of alternative 4 on foal production, herd size and growth over the next five years is discussed in section 3.4 and presented in table 7. The direct impacts of not removing 24 excess wild horses in 2006 and no additional fertility control would affect current and future herd size. The wild horse population would continue to grow an average of 6-7% or more per year. Herd size may exceed 200 total horses by 2009 and may be double AML by 2010. Grazing impacts would remain at unacceptable levels over the next five years.

### **5.2.2 Indirect Impacts**

Indirect impacts may include high horse mortality rates, thin body conditions, and poor health as habitat resources are diminished by increasing horse populations. Older and younger age classes and lactating mares would be most affected by nutritional deficiencies and stress. Skewed sex ratios, undesirable age distributions, and social disruption may result as herd members compete for available resources. Nutritional deficiencies would negatively affect growing animals and may limit their potential growth. Parasites and disease would increase as population densities continue to increase. Horses would continue to move outside the designated range, using upper elevation Custer National Forest lands, in search of habitat as demands on resources within the PMWHR increase.

Indirect impacts would also include increasing degradation to riparian habitats and water quality as herd size increases each year that a gather is postponed. There would be an increasing inability of the range to support healthy populations of native perennial plants. The abundance and long-term production potential of desired plant communities may be compromised.

The potential exists for an increase in noxious weeds from increased wild horse utilization levels and ground disturbance. Existing sites of invasive or non-native species may spread more rapidly if desired plant communities are degraded.

Forage utilization would exceed the capacity of the range resulting in a loss of desired forage species from plant communities as plant health and watershed conditions continue to deteriorate. Soil loss from wind and water erosion would occur. There would be increased competition for forage among multiple-uses and fewer resources would be available for wildlife.

Indirect impacts to vegetative communities would impact migratory bird species and their

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habitats. Increasing horse densities would degrade game habitat and affect aesthetics of visual resources which would impact recreational experiences. Indirect negative impacts would include a decrease in wilderness values as ecological conditions diminish and areas are less aesthetically appealing to the public.

Adverse impacts to cultural resource sites from overgrazing and trampling would include modification and displacement of artifacts and features as well as the erosion of organic middens containing valuable information.

### **5.2.3 Cumulative Impacts**

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health and proper management of wild horses within the established boundaries of the PMWHR.

Cumulative impacts associated unmanaged wild horse populations and failure to remove excess animals would result in increased animal mortality and diminished health; over-utilization and damage to forage, riparian, and water resources; and, increased competition/conflicts between other uses, including wildlife and recreation uses. As native plant health deteriorates and plants are lost, soil erosion would increase. The shallow soils typical of this region cannot tolerate much loss without losing productivity and thus the ability to be re-vegetated with native plants. Invasive, non-native plant species would increase and invade new areas following increased soil disturbance and reduced native plant vigor and abundance. This would lead to both a shift in plant composition towards weedy species and an irreplaceable loss of topsoil and productivity from erosion. A thriving natural ecological balance and multiple-use relationship would not be maintained nor would a healthy, self-sustaining wild horse population be supported.

## **6.0 CONSULTATION AND COORDINATION**

Public scoping for the Pryor Mountain Wild Horse Range Herd Plan Revision, which has included two public meetings as well as the submission of a significant number of written comments, occurred in 2000-2001. During this process, BLM has received and reviewed public input regarding herd genetic viability, population control techniques, and range health. All previous EAs on PMWHR management issues (1997-2005) have generated significant public comment. All relevant input was considered in the development of this EA.

On-going research on wild horse fertility control has also been considered. Results of several research studies on Pryor wild horse population demographics, genetics and viability were given detailed consideration. Results of the NRCS Pryor Mountain Wild Horse Range Survey and Assessment (received in May 2004), which demonstrate that cumulative impacts (including

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weather, drought and grazing) have resulted in depressed rangeland health, have been given serious consideration in the development of this EA.

This EA has been mailed to a Pryor Mountain mailing distribution list totaling over 600 individuals and groups (Appendix 5).

**6.1 List of Preparers**

Linda Coates-Markle, Wild Horse and Burro Specialist, Montana/Dakotas.

**6.2 Individuals, Groups and Agencies Consulted**

A letter with notification about the availability of the Population Control EA has been distributed to members of the general public, special interest groups, intra- and interagency personnel, and researchers at several different institutions (see Appendix 5) for review and comment. A press release was issued in the local and state media informing the public that the EA has been prepared and is available for review. Copies of the EA are available at the Billings Field Office, BLM, 5001 Southgate Drive, Billings, MT, 59101-4669 or by calling 406-896-5013. Comments to the EA may be submitted to the same address.

**7.0 FONSI**

The environment assessment, analyzing the environmental effects of the proposed action, has been reviewed. With the implementation of the attached mitigation measures, there is a finding of no significant impact on the human environment and an environmental impact statement (EIS) is not required. Implementation of the proposed action will not result in unnecessary or undue degradation of the public lands. In addition, the proposed action is in conformance with the appropriate and approved land use and herd management plans.

**SIGNATURE OF PREPARER:**\_\_\_\_\_

**Date Signed:**\_\_\_\_\_

**SIGNATURE OF ENVIRONMENTAL REVIEWER:**\_\_\_\_\_

**Date Signed:**\_\_\_\_\_

**SIGNATURE OF AUTHORIZED OFFICIAL:**\_\_\_\_\_

**Date Signed:**\_\_\_\_\_

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